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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/634,213	08/09/2000	Glen D. Stone	50N3540/1449	5599

7590 10/28/2003

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EXAMINER	
ALI, SYED J	

ART UNIT	PAPER NUMBER
2127	5

DATE MAILED: 10/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/634,213	STONE ET AL.	
	Examin r	Art Unit	
	Syed J Ali	2127	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 August 2000* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-41* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-41* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *2,4* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-2, 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gibbs et al. (USPN 6,169,725) (hereinafter Gibbs) in view of Toguchi (USPN 6,408,355).

As per claim 1, Gibbs discloses a method of interfacing to a user of an isochronous device, comprising:

displaying a representation of an isochronous device (col. 4 lines 27-43, "They provide the infrastructure to control the routing and processing of isochronous and time-sensitive data [e.g., such as audio and video content]. Specifically, the HAVI architecture provides: an execution environment supporting the visual representation and control of appliances").

Toguchi discloses the following limitations not shown by Gibbs, specifically representing a currently used portion of isochronous processing capacity of a device (col. 8 lines 8-17, ""For a case that the setting of isochronous transaction fails, a case that a value of band capacity represented by the BANDWIDTH_AVAILABLE register is smaller than a value of bandwidth used for isochronous transaction", wherein since the bandwidth used is a known value, the portion of the processing capacity could be represented in the visual representation of Gibbs).

It would have been obvious to one of ordinary skill in the art to combine Gibbs and Toguchi since the visual representation disclosed by Gibbs is somewhat limited in that it is specifically related to the control of isochronous devices, rather than their processing capacity. This has the drawback of not allowing the user to be aware of conditions that may result in failure of one or more devices. By utilizing the disclosure of Toguchi, the system may be more aware of the processing resources that are available. The visual representation of Gibbs could easily be modified to take values from the registers of the isochronous devices and incorporate a representation of the portion of bandwidth that is available. This allows the user to be aware when possible overload conditions may occur, and therefore prevent failure of the devices.

As per claim 2, Gibbs discloses the method of claim 1, wherein the device is selected from an isochronous bus, an IEEE-1394 bus, a programmable computer performing isochronous processing, an isochronous data encoder, an isochronous data decoder, an isochronous data transcoder, a source of isochronous data, a sink of isochronous data, an audio/video hard disk drive (AVHDD), an isochronous data storage and retrieval device, and a device capable of concurrently performing at least one isochronous task (col. 9 lines 49056, "1394 Communication Media Manager 501 - allows other elements to perform asynchronous and isochronous communication over 1394", wherein the claimed devices are a set of typical isochronous devices, and since Gibbs discloses an architecture that can support any type of isochronous device, what is disclosed by Gibbs would support any of the claimed devices).

As per claim 6, Toguchi discloses the method of claim 1, wherein the representation graphically shows a relationship between the currently used portion and the isochronous processing capacity (col. 8 lines 8-17, "For a case that the setting of isochronous transaction fails, a case that a value of band capacity represented by the BANDWIDTH_AVAILABLE register is smaller than a value of bandwidth used for isochronous transaction", wherein the isochronous processing capacity would be represented by a sum of the bandwidth available and the bandwidth used).

It would have been obvious to one of ordinary skill in the art to combine Toguchi's disclosure pertaining to allocating resources among isochronous devices with Gibbs' user interface allowing control of said devices for reasons discussed above in reference to claim 1.

As per claim 7, Gibbs discloses the method of claim 1, wherein the representation shows how the currently used portion is allocated among a plurality of isochronous tasks currently active on the device (Claim 1, "In a system having a plurality of intercoupled devices transmitting and receiving audio and video data", wherein the discussion of claim 1 establishes the visual display of Gibbs representing the available processing capacity of an isochronous device).

3. Claims 3-5, 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gibbs in view of Toguchi in view of Gulick (USPN 6,502,123).

As per claim 3, Gulick discloses the following limitations not shown by the modified Gibbs, specifically the method of claim 1, further comprising:

receiving a user request to initiate a task, wherein the displaying is initiated when honoring the user request would exceed the isochronous processing capacity (col. 7 lines 17-29, "when an application is attempted to be initiated and insufficient resources are available, scheduler 218 may query a user via a user interface 220 for action to take").

It would have been obvious to one of ordinary skill in the art to combine the modified Gibbs with Gulick since providing a notification to the user when processing capacity is about to be exceeded allows the user to redistribute tasks or cancel tasks accordingly such that the processing resources are utilized properly. By allowing an overload condition to occur, any number of problems could arise causing damage to the integrity of the system. By knowing the processing capabilities of the system, and being able to anticipate an overload and notify the user, such overload conditions can be prevented. In some cases, such prevention is done through the autonomous use of a load balancing mechanism, although allowing a user to engage the prevention mechanism allows a greater degree of control of the system, therefore providing greater customizability.

As per claim 4, Gulick discloses the method of claim 3, further comprising:

accepting a user selection of at least one of a plurality of isochronous tasks currently active on the device (col. 7 lines 17-29, "a user via user interface 220 may increase the percentage of the operating system bandwidth allocated to isochronous tasks. Alternatively, a

user may select to disable an application currently executing to free resources for the execution of the new application"); and

sacrificing the selected task (col. 7 lines 17-29, "a user may select to disable an application currently executing to free resources for the execution of the new application").

It would have been obvious to one of ordinary skill in the art to combine the modified Gibbs with Gulick for reasons discussed above in reference to claim 3.

As per claim 5, Gulick discloses the method of claim 4, wherein the sacrificing is selected from terminating the selected task, suspending the selected task and performing the selected task in a degraded mode of operation (col. 2 lines 52-65, "if sufficient resources are not available to execute the isochronous tasks of an application, the operating system uses the system interface to query a user whether to suspend an existing application, to increase the percentage of operating system bandwidth allocated to isochronous tasks, or to not initiate the new application").

It would have been obvious to one of ordinary skill in the art to combine the modified Gibbs with Gulick for reasons discussed above in reference to claim 3.

As per claim 8, Gibbs discloses a method of interfacing to a user of an. isochronous device, comprising:

displaying a representation of an isochronous device (col. 4 lines 27-43, "They provide the infrastructure to control the routing and processing of isochronous and time-sensitive data

[e.g., such as audio and video content]. Specifically, the HAVI architecture provides: an execution environment supporting the visual representation and control of appliances").

Toguchi discloses the following limitations not shown by Gibbs, specifically that the representation of an isochronous device displays the processing capacity of the device (col. 8 lines 8-17, ""For a case that the setting of isochronous transaction fails, a case that a value of band capacity represented by the BANDWIDTH_AVAILABLE register is smaller than a value of bandwidth used for isochronous transaction", wherein since the bandwidth used is a known value, the portion of the processing capacity could be represented in the visual representation of Gibbs).

It would have been obvious to one of ordinary skill in the art to combine Gibbs with Toguchi since the visual representation disclosed by Gibbs is somewhat limited in that it is specifically related to the control of isochronous devices, rather than their processing capacity. This has the drawback of not allowing the user to be aware of conditions that may result in failure of one or more devices. By utilizing the disclosure of Toguchi, the system may be more aware of the processing resources that are available. The visual representation of Gibbs could easily be modified to take values from the registers of the isochronous devices and incorporate a representation of the portion of bandwidth that is available. This allows the user to be aware when possible overload conditions may occur, and therefore prevent failure of the devices.

Gulick discloses the following limitations not shown by the modified Gibbs, specifically receiving a user request to initiate a task (col. 7 lines 17-29, "when an application is attempted to be initiated and insufficient resources are available, scheduler 218 may query a user via a user interface 220 for action to take");

the displaying being initiated when honoring the user request would exceed the isochronous processing capacity (col. 7 lines 17-29, "when an application is attempted to be initiated and insufficient resources are available, scheduler 218 may query a user via a user interface 220 for action to take"); and

accepting a user selection of a currently active isochronous task that is to be sacrificed in favor of the requested task (col. 7 lines 17-29, "a user may select to disable an application currently executing to free resources for the execution of the new application").

It would have been obvious to one of ordinary skill in the art to combine the modified Gibbs with Toguchi since providing a notification to the user when processing capacity is about to be exceeded allows the user to redistribute tasks or cancel tasks accordingly such that the processing resources are utilized properly. By allowing an overload condition to occur, any number of problems could arise causing damage to the integrity of the system. By knowing the processing capabilities of the system, and being able to anticipate an overload and notify the user, such overload conditions can be prevented. In some cases, such prevention is done through the autonomous use of a load balancing mechanism, although allowing a user to engage the prevention mechanism allows a greater degree of control of the system, therefore providing greater customizability.

As per claim 9, Gibbs discloses the method of claim 8, wherein the device is selected from an isochronous bus, an IEEE-1394 bus, a programmable computer performing isochronous processing, an isochronous data encoder, an isochronous data decoder, an isochronous data transcoder, a source of isochronous data, a sink of isochronous data, an audio/video hard disk

drive (AVHDD), a isochronous data storage and retrieval device, and a device capable of concurrently performing more than one isochronous task (col. 9 lines 49056, "1394 Communication Media Manager 501 - allows other elements to perform asynchronous and isochronous communication over 1394", wherein the claimed devices are a set of typical isochronous devices, and since Gibbs discloses an architecture that can support any type of isochronous device, what is disclosed by Gibbs would support any of the claimed devices).

As per claim 10, Gulick discloses the method of claim 8 wherein the representation comprises a representation of a projected state of the isochronous processing capacity if the requested task were initiated (col. 8 lines 46-67, "if an application that includes one isochronous task (Task E) that executes every twenty milliseconds and has a duration of 0.8 milliseconds would require 4% of the operating system budget. If this application was attempted to be initiated, operating system 112 may determine that the execution of Task E in addition to Tasks A-D would consume 21% of the available operating system bandwidth").

It would have been obvious to one of ordinary skill in the art to combine the modified Gibbs with Gulick for reasons discussed above in reference to claim 8.

As per claim 11, Gulick discloses the method of claim 8 wherein the sacrificing is selected from terminating the selected task, suspending the selected task and converting the selected task to an asynchronous mode of operation (col. 2 lines 52-65, "if sufficient resources are not available to execute the isochronous tasks of an application, the operating system uses the system interface to query a user whether to suspend an existing application, to increase the percentage of

operating system bandwidth allocated to isochronous tasks, or to not initiate the new application"). In addition, Gibbs discloses an interface that allows a device to perform either asynchronous or isochronous communication (col. 9 lines 54-56, "1394 Communication Media Manager 501 - allows other elements to perform asynchronous and isochronous communication over 1394").

It would have been obvious to one of ordinary skill in the art to combine the modified Gibbs with Gulick for reasons discussed above in reference to claim 8.

4. Claims 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gibbs in view of Toguchi in view of McCartney (USPN 6,496,864).

As per claim 12, Gibbs discloses a method of indicating to a user a current usage of an isochronous device, comprising:

displaying a representation for a particular one of a plurality of tasks being handled by the device (col. 4 lines 27-43, "They provide the infrastructure to control the routing and processing of isochronous and time-sensitive data [e.g., such as audio and video content]. Specifically, the HAVI architecture provides: an execution environment supporting the visual representation and control of appliances").

Toguchi discloses the following limitations not shown by Gibbs, specifically that the representation being of a portion of the isochronous capacity used by the particular task (col. 8 lines 8-17, ""For a case that the setting of isochronous transaction fails, a case that a value of band capacity represented by the BANDWIDTH_AVAILABLE register is smaller than a value

of bandwidth used for isochronous transaction", wherein since the bandwidth used is a known value, the portion of the processing capacity could be represented in the visual representation of Gibbs).

It would have been obvious to one of ordinary skill in the art to combine Gibbs and Toguchi since the visual representation disclosed by Gibbs is somewhat limited in that it is specifically related to the control of isochronous devices, rather than their processing capacity. This has the drawback of not allowing the user to be aware of conditions that may result in failure of one or more devices. By utilizing the disclosure of Toguchi, the system may be more aware of the processing resources that are available. The visual representation of Gibbs could easily be modified to take values from the registers of the isochronous devices and incorporate a representation of the portion of bandwidth that is available. This allows the user to be aware when possible overload conditions may occur, and therefore prevent failure of the devices.

McCartney discloses the following limitations not shown by the modified Gibbs, specifically displaying, when the representation is selected, a breakdown of a plurality of types of resources used by the particular task (col. 3 lines 36-64, "When a hardware device is shared among a plurality of processes, it may be necessary to allocate certain resources for use specifically by a particular process. For example, when a display device is shared among a plurality of processes, each process may require allocation of some video memory of the display device").

It would have been obvious to one of ordinary skill in the art to combine the modified Gibbs with McCartney since by allowing the user to view how a particular device is consuming various resources, reallocation can be performed such that if one particular resource utilization is

abnormally high, it can be adjusted accordingly. In continuing with the example of a display device presented by McCartney, if the display device is consuming a high portion of the video memory, and a second display device is also attempting to use video memory, it may be desirable to instruct the first device to use fewer resources.

As per claim 13, Gibbs discloses the method of claim 12, wherein the device is selected from an isochronous bus, an IEEE-1394 bus, a programmable computer performing isochronous processing, an isochronous data encoder, an isochronous data decoder, an isochronous data transcoder, a source of isochronous data, a sink of isochronous data, an audio/video hard disk drive (AVHDD), a isochronous data storage sand retrieval device, and a device capable of concurrently performing at least one isochronous task (col. 9 lines 49056, "1394 Communication Media Manager 501 - allows other elements to perform asynchronous and isochronous communication over 1394", wherein the claimed devices are a set of typical isochronous devices, and since Gibbs discloses an architecture that can support any type of isochronous device, what is disclosed by Gibbs would support any of the claimed devices).

5. Claims 14-18, 27-28, and 40-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gibbs in view of Gulick.

As per claim 14, Gibbs discloses a system for effectively managing resources in an electronic device, comprising:

an interface manager configured to provide a user interface that includes resource information from a resource characterization (col. 4 lines 27-43, "They provide the infrastructure to control the routing and processing of isochronous and time-sensitive data [e.g., such as audio and video content]. Specifically, the HAVI architecture provides: an execution environment supporting the visual representation and control of appliances", wherein the interface does not specifically address resource utilization, and this is addressed below by Gulick); and

means for controlling said interface manager (col. 4 lines 27-43, "the HAVI architecture provides: an execution environment supporting the visual representation and control of appliances", wherein the interface allows a user to interactively control the functions of a connected isochronous device).

Gulick discloses the following limitations not shown by Gibbs, specifically a resource characterization coupled to said electronic device, said resource characterization corresponding to a requested process (col. 8 lines 46-67, "if an application that includes one isochronous task (Task E) that executes every twenty milliseconds and has a duration of 0.8 milliseconds would require 4% of the operating system budget. If this application was attempted to be initiated, operating system 112 may determine that the execution of Task E in addition to Tasks A-D would consume 21% of the available operating system bandwidth", wherein the operating system is aware of the resource consumption of each device).

It would have been obvious to one of ordinary skill in the art to combine Gibbs with Gulick since the visual representation disclosed by Gibbs is somewhat limited in that it is specifically related to the control of isochronous devices, rather than their resource utilization. This has the drawback of not allowing the user to be aware of conditions that may result in

failure of one or more devices. By utilizing the disclosure of Gulick that is always aware of the operating system bandwidth available as well as providing feedback to a user to indicate when an overload may occur, the visual representation of Gibbs could easily be modified to interact with the operating system to receive values corresponding to resource utilization of the isochronous devices and incorporate those values into the visual representation disclosed therein. This allows the user to be aware when possible overload conditions may occur, and therefore prevent failure of the devices.

As per claim 15, Gibbs discloses the system of claim 14, wherein said electronic device is coupled to an electronic network that is implemented according to an IEEE Std 1394 serial bus standard (col. 9 lines 54-56, "1394 Communication Media Manager 501 - allows other elements to perform asynchronous and isochronous communication over 1394").

As per claim 16, Gibbs discloses the system of claim 14 wherein said electronic device is one of a consumer-electronics device, an audio-visual device, a set-top box, and a personal computer device (col. 9 lines 49056, "1394 Communication Media Manager 501 - allows other elements to perform asynchronous and isochronous communication over 1394", wherein the claimed devices are a set of typical isochronous devices, and since Gibbs discloses an architecture that can support any type of isochronous device, what is disclosed by Gibbs would support any of the claimed devices).

As per claim 17, Gibbs discloses the system of claim 14 wherein said requested process includes one or more time-sensitive isochronous processes for manipulating time-critical isochronous data, and wherein said means for controlling includes at least one of a processor device and dedicated logic (col. 4 lines 27-43, "They provide the infrastructure to control the routing and processing of isochronous and time-sensitive data [e.g., such as audio and video content]").

As per claim 18, Gulick discloses the system of claim 14 wherein said interface manager displays projected resource usages for said requested process in combination with allocated resources for existing processes (col. 8 lines 46-67, "if an application that includes one isochronous task (Task E) that executes every twenty milliseconds and has a duration of 0.8 milliseconds would require 4% of the operating system budget. If this application was attempted to be initiated, operating system 112 may determine that the execution of Task E in addition to Tasks A-D would consume 21% of the available operating system bandwidth") to thereby allow a system user to interactively manage said resources in said electronic device by selecting one of a request cancellation, an existing task cancellation (col. 2 lines 52-65, "if sufficient resources are not available to execute the isochronous tasks of an application, the operating system uses the system interface to query a user whether to suspend an existing application, to increase the percentage of operating system bandwidth allocated to isochronous tasks, or to not initiate the new application") and a resource analysis procedure that is performed by referencing an expanded user interface (col. 8 lines 46-67, wherein the attempted initiation of a new task results

in the operating system analyzing resources to determine if the allocated bandwidth has been exceeded).

It would have been obvious to one of ordinary skill in the art to combine Gibbs with Gulick for reasons discussed above in reference to claim 14.

As per claim 27, Gulick discloses the system of claim 14 wherein said interface manager displays current existing resource usages in a normal operational mode on said user interface (col. 8 lines 46-67, wherein the resource usages described therein are available in normal operational modes, and when taken in combination with the visual representation disclosed by Gibbs, would be available for display even under normal operating conditions).

It would have been obvious to one of ordinary skill in the art to combine Gibbs with Gulick for reasons discussed above in reference to claim 14.

As per claim 28, Gulick discloses the system of claim 27 wherein said user interface includes a current resource indicator that provides information regarding current existing resource usages on said electronic device (col. 8 lines 46-67, wherein the current resource indicators are used in evaluating the bandwidth usage).

It would have been obvious to one of ordinary skill in the art to combine Gibbs with Gulick for reasons discussed above in reference to claim 14.

As per claim 40, Gibbs discloses a computer-readable medium comprising program instructions for managing resources in an electronic device by performing the steps of:

an interface manager (col. 4 lines 27-43, "They provide the infrastructure to control the routing and processing of isochronous and time-sensitive data [e.g., such as audio and video content]. Specifically, the HAVI architecture provides: an execution environment supporting the visual representation and control of appliances", wherein the interface does not specifically address resource utilization, and this is addressed below by Gulick);

generating a user interface with said interface manager based upon said resource characterization (col. 4 lines 27-43, "They provide the infrastructure to control the routing and processing of isochronous and time-sensitive data [e.g., such as audio and video content]. Specifically, the HAVI architecture provides: an execution environment supporting the visual representation and control of appliances", wherein the interface does not specifically address resource utilization, and this is addressed below by Gulick); and

controlling said interface manager with a processor that is coupled to said electronic device (col. 4 lines 27-43, "the HAVI architecture provides: an execution environment supporting the visual representation and control of appliances", wherein the interface allows a user to interactively control the functions of a connected isochronous device).

Gulick discloses the following limitations not shown by Gibbs, specifically referencing a resource characterization, said resource characterization corresponding to a requested process (col. 8 lines 46-67, "if an application that includes one isochronous task (Task E) that executes every twenty milliseconds and has a duration of 0.8 milliseconds would require 4% of the operating system budget. If this application was attempted to be initiated, operating system 112 may determine that the execution of Task E in addition to Tasks A-D would consume 21% of the

available operating system bandwidth", wherein the operating system is aware of the resource consumption of each device).

It would have been obvious to one of ordinary skill in the art to combine Gibbs with Gulick since the visual representation disclosed by Gibbs is somewhat limited in that it is specifically related to the control of isochronous devices, rather than their resource utilization. This has the drawback of not allowing the user to be aware of conditions that may result in failure of one or more devices. By utilizing the disclosure of Gulick that is always aware of the operating system bandwidth available as well as providing feedback to a user to indicate when an overload may occur, the visual representation of Gibbs could easily be modified to interact with the operating system to receive values corresponding to resource utilization the isochronous devices and incorporate those values into the visual representation disclosed therein. This allows the user to be aware when possible overload conditions may occur, and therefore prevent failure of the devices.

As per claim 41, Gibbs discloses a system for managing resources in an electronic device, comprising:

means for generating a user interface based upon a resource characterization (col. 4 lines 27-43, "They provide the infrastructure to control the routing and processing of isochronous and time-sensitive data [e.g., such as audio and video content]. Specifically, the HAVI architecture provides: an execution environment supporting the visual representation and control of appliances", wherein the interface does not specifically address resource utilization, and this is addressed below by Gulick); and

means for controlling said means for generating a user interface (col. 4 lines 27-43, "the HAVI architecture provides: an execution environment supporting the visual representation and control of appliances", wherein the interface allows a user to interactively control the functions of a connected isochronous device).

Gulick discloses the following limitations not shown by Gibbs, specifically means for maintaining a resource characterization, said resource characterization corresponding to a requested process (col. 8 lines 46-67, "if an application that includes one isochronous task (Task E) that executes every twenty milliseconds and has a duration of 0.8 milliseconds would require 4% of the operating system budget. If this application was attempted to be initiated, operating system 112 may determine that the execution of Task E in addition to Tasks A-D would consume 21% of the available operating system bandwidth", wherein the operating system is aware of the resource consumption of each device).

It would have been obvious to one of ordinary skill in the art to combine Gibbs with Gulick since the visual representation disclosed by Gibbs is somewhat limited in that it is specifically related to the control of isochronous devices, rather than their resource utilization. This has the drawback of not allowing the user to be aware of conditions that may result in failure of one or more devices. By utilizing the disclosure of Gulick that is always aware of the operating system bandwidth available as well as providing feedback to a user to indicate when an overload may occur, the visual representation of Gibbs could easily be modified to interact with the operating system to receive values corresponding to resource utilization the isochronous devices and incorporate those values into the visual representation disclosed therein. This allows

the user to be aware when possible overload conditions may occur, and therefore prevent failure of the devices.

6. Claims 19-26, 29-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gibbs in view of Gulick in view of Clarisse et al. (USPN 6,591,290) (hereinafter Clarisse).

As per claim 19, Clarisse discloses the following limitations not shown by the modified Gibbs, specifically the system of claim 14 wherein a system user generates a request to instantiate said requested process on said electronic device (Claim 1, "responsive to a user activating an application process on a one of said user application devices...for transmitting control data to a selected one of said plurality of servers indicating a request for initiation of said activated application").

It would have been obvious to one of ordinary skill in the art to combine the modified Gibbs with Clarisse since the modified Gibbs has the drawback of not allowing user initiated tasks. All tasks are initiated at the system level, and provide the user with the ability to intervene if problems occur. Nonetheless, allowing a user to initiate a task is not a particularly unknown concept. One example of allowing a user to initiate tasks is disclosed above by Clarisse. When taken in combination with the modified Gibbs, it allows a user the ability to directly control isochronous devices, thereby allowing a user to have those devices function in whichever manner they may desire.

As per claim 20, Gibbs as modified by Gulick discloses the system of claim 19 wherein an allocation manager evaluates said resource characterization in response to said request from said software module, wherein Gulick discloses evaluation by an allocation manager (col. 7 lines 4-16, "prior to initiating an application, scheduler 218 determines whether sufficient resources are available to execute the tasks of that application", wherein the scheduler acts as the allocation manager in the sense that it evaluates whether or not the system can satisfy the request).

It would have been obvious to one of ordinary skill in the art to combine Gibbs and Gulick since the visual representation disclosed by Gibbs is somewhat limited in that it is specifically related to the control of isochronous devices, rather than their resource utilization. This has the drawback of not allowing the user to be aware of conditions that may result in failure of one or more devices. By utilizing the disclosure of Gulick that is always aware of the operating system bandwidth available as well as providing feedback to a user to indicate when an overload may occur, the visual representation of Gibbs could easily be modified to interact with the operating system to receive values corresponding to resource utilization of the isochronous devices and incorporate those values into the visual representation disclosed therein. This allows the user to be aware when possible overload conditions may occur, and therefore prevent failure of the devices. Further, the addition of the disclosure of Clarisse would not have obviated or destroyed the teachings of Gulick.

As per claim 21, Gibbs as modified by Gulick discloses the system of claim 20 wherein Gulick discloses said resource characterization includes one or more resource listings and one or more corresponding resource usage values that are required for a deterministic performance of

said requested process (col. 8 lines 46--67, "in the illustrated embodiment, Tasks A-D uses 17 percent of the available operating system bandwidth [Task A uses 8%, Task B uses 3%, Task C uses 2% and Task D uses 4%]", wherein the resource usage values of the tasks is taken as a composite when considering whether or not the system can satisfy any new requests).

It would have been obvious to one of ordinary skill in the art to combine Gibbs and Gulick for reasons discussed above in reference to claim 20. Further, the addition of the disclosure of Clarisse would not have obviated or destroyed the teachings of Gulick.

As per claim 22, Gibbs as modified by Gulick discloses the system of claim 20 wherein Gulick discloses said resource characterization includes resource information regarding total available resources from said electronic device (col. 8 lines 46-67, "If the maximum percentage allocated to isochronous tasks is 20%, operating system 212 may not initiate the application that includes Task E", wherein the resource characterization considers the total bandwidth allocated to a particular type of task when making a scheduling decision).

It would have been obvious to one of ordinary skill in the art to combine Gibbs and Gulick for reasons discussed above in reference to claim 20. Further, the addition of the disclosure of Clarisse would not have obviated or destroyed the teachings of Gulick.

As per claim 23, Gibbs as modified by Gulick discloses the system of claim 20 wherein Gulick discloses said allocation manager compares resource usage values from said resource characterization and current available resource values from said electronic device to determine whether to authorize said requested process (col. 8 lines 46-67, "if an application that includes

one isochronous task (Task E) that executes every twenty milliseconds and has a duration of 0.8 milliseconds would require 4% of the operating system budget. If this application was attempted to be initiated, operating system 112 may determine that the execution of Task E in addition to Tasks A-D would consume 21% of the available operating system bandwidth", wherein the cumulative bandwidth consumed is compared with the allocated bandwidth in making a scheduling decision).

It would have been obvious to one of ordinary skill in the art to combine Gibbs and Gulick for reasons discussed above in reference to claim 20. Further, the addition of the disclosure of Clarisse would not have obviated or destroyed the teachings of Gulick.

As per claim 24, Gibbs as modified by Gulick discloses the system of claim 23 wherein Gulick discloses said allocation manager authorizes said requested process whenever said resource usage values from said resource characterization are less than or equal to said current available resource values from said electronic device (col. 8 lines 46-67, "if an application that includes one isochronous task (Task E) that executes every twenty milliseconds and has a duration of 0.8 milliseconds would require 4% of the operating system budget. If this application was attempted to be initiated, operating system 112 may determine that the execution of Task E in addition to Tasks A-D would consume 21% of the available operating system bandwidth. If the maximum percentage allocated to isochronous tasks is 20%, operating system 212 may not initiate the application that includes Task E", wherein if the total bandwidth consumed is less than the maximum percentage allocated, the application can be scheduled).

It would have been obvious to one of ordinary skill in the art to combine Gibbs and Gulick for reasons discussed above in reference to claim 20. Further, the addition of the disclosure of Clarisse would not have obviated or destroyed the teachings of Gulick.

As per claim 25, Gibbs as modified by Gulick discloses the system of claim 23 wherein Gulick discloses said allocation manager denies said requested process whenever said resource usage values from said resource characterization are greater than said current available resource values from said electronic device (col. 8 lines 46-67, "if an application that includes one isochronous task (Task E) that executes every twenty milliseconds and has a duration of 0.8 milliseconds would require 4% of the operating system budget. If this application was attempted to be initiated, operating system 112 may determine that the execution of Task E in addition to Tasks A-D would consume 21% of the available operating system bandwidth. If the maximum percentage allocated to isochronous tasks is 20%, operating system 212 may not initiate the application that includes Task E").

It would have been obvious to one of ordinary skill in the art to combine Gibbs and Gulick for reasons discussed above in reference to claim 20. Further, the addition of the disclosure of Clarisse would not have obviated or destroyed the teachings of Gulick.

As per claim 26, Gibbs as modified by Gulick discloses the system of claim 24 wherein Gulick discloses a picokernel in said electronic device instantiates and executes said requested process after said allocation manager authorizes said requested process (col. 7 lines 4-16, wherein the scheduler schedules the process once a determination has been made that the request

can be satisfied using the available resources). Furthermore, Applicant discloses on pg. 12 that "*picokernel 314 preferably controls and coordinates the scheduling of isochronous processes.*" In light of this disclosure, the scheduler of Gulick performs the same functions as the claimed picokernel.

It would have been obvious to one of ordinary skill in the art to combine Gibbs and Gulick for reasons discussed above in reference to claim 20. Further, the addition of the disclosure of Clarisse would not have obviated or destroyed the teachings of Gulick.

As per claim 29, Clarisse discloses the system of claim 14 wherein a system user generates a request to instantiate a new task on said electronic device (Claim 1, "responsive to a user activating an application process on a one of said user application devices...for transmitting control data to a selected one of said plurality of servers indicating a request for initiation of said activated application").

Gulick discloses the system of claim 14 wherein a network entity generates a request to instantiate a new task on said electronic device (col. 7 lines 17-29, "It is noted that the user may be another application or another computer system", wherein the other computer system could reasonably be a network entity).

It would have been obvious to one of ordinary skill in the art to combine Gibbs as modified by Gulick with Clarisse for reasons discussed above in reference to claim 19.

As per claim 30, Gibbs as modified by Gulick discloses the system of claim 29 wherein Gulick discloses said interface manager displays current existing resource usages and projected

resource usages on said user interface in a request mode, said projected resource usages including additional resources required for said new task (col. 8 lines 46-67, "if an application that includes one isochronous task (Task E) that executes every twenty milliseconds and has a duration of 0.8 milliseconds would require 4% of the operating system budget. If this application was attempted to be initiated, operating system 112 may determine that the execution of Task E in addition to Tasks A-D would consume 21% of the available operating system bandwidth").

It would have been obvious to one of ordinary skill in the art to combine Gibbs and Gulick for reasons discussed above in reference to claim 20. Further, the addition of the disclosure of Clarisse would not have obviated or destroyed the teachings of Gulick.

As per claim 31, Gibbs as modified by Gulick discloses the system of claim 30 wherein Gulick discloses said user interface includes a projected resource indicator that provides information regarding projected resource usages that include additional resources required for said new task (col. 8 lines 46-67, "if an application that includes one isochronous task (Task E) that executes every twenty milliseconds and has a duration of 0.8 milliseconds would require 4% of the operating system budget. If this application was attempted to be initiated, operating system 112 may determine that the execution of Task E in addition to Tasks A-D would consume 21% of the available operating system bandwidth").

It would have been obvious to one of ordinary skill in the art to combine Gibbs and Gulick for reasons discussed above in reference to claim 20. Further, the addition of the disclosure of Clarisse would not have obviated or destroyed the teachings of Gulick.

As per claim 32, Gibbs as modified by Gulick discloses the system of claim 30 wherein Gulick discloses said user interface includes a request result field that provides information regarding whether sufficient additional resources are available to instantiate said new task (col. 8 lines 46-67, "if an application that includes one isochronous task (Task E) that executes every twenty milliseconds and has a duration of 0.8 milliseconds would require 4% of the operating system budget. If this application was attempted to be initiated, operating system 112 may determine that the execution of Task E in addition to Tasks A-D would consume 21% of the available operating system bandwidth. If the maximum percentage allocated to isochronous tasks is 20%, operating system 212 may not initiate the application that includes Task E", wherein if the total bandwidth consumed is less than the maximum percentage allocated, the application can be scheduled).

It would have been obvious to one of ordinary skill in the art to combine Gibbs and Gulick for reasons discussed above in reference to claim 20. Further, the addition of the disclosure of Clarisse would not have obviated or destroyed the teachings of Gulick.

As per claim 33, Gibbs as modified by Gulick discloses the system of claim 30 wherein Gulick discloses an allocation manager allocates resources to instantiate said new task when sufficient additional resources are available (col. 8 lines 46-67, "if an application that includes one isochronous task (Task E) that executes every twenty milliseconds and has a duration of 0.8 milliseconds would require 4% of the operating system budget. If this application was attempted to be initiated, operating system 112 may determine that the execution of Task E in addition to

Tasks A-D would consume 21% of the available operating system bandwidth. If the maximum percentage allocated to isochronous tasks is 20%, operating system 212 may not initiate the application that includes Task E", wherein if the total bandwidth consumed is less than the maximum percentage allocated, the application can be scheduled).

It would have been obvious to one of ordinary skill in the art to combine Gibbs and Gulick for reasons discussed above in reference to claim 20. Further, the addition of the disclosure of Clarisse would not have obviated or destroyed the teachings of Gulick.

As per claim 34, Gibbs as modified by Gulick discloses the system of claim 30 wherein Gulick discloses said system user cancels said request whenever said user interface indicates that sufficient additional resources are not available (col. 2 lines 52-65, "if sufficient resources are not available to execute the isochronous tasks of an application, the operating system uses the system interface to query a user whether to suspend an existing application, to increase the percentage of operating system bandwidth allocated to isochronous tasks, or to not initiate the new application").

It would have been obvious to one of ordinary skill in the art to combine Gibbs and Gulick for reasons discussed above in reference to claim 20. Further, the addition of the disclosure of Clarisse would not have obviated or destroyed the teachings of Gulick.

As per claim 35, Gibbs as modified by Gulick discloses the system of claim 30 wherein Gulick discloses said system user cancels an existing task whenever said user interface indicates that sufficient additional resources are not available (col. 2 lines 52-65, "if sufficient resources

are not available to execute the isochronous tasks of an application, the operating system uses the system interface to query a user whether to suspend an existing application, to increase the percentage of operating system bandwidth allocated to isochronous tasks, or to not initiate the new application").

It would have been obvious to one of ordinary skill in the art to combine Gibbs and Gulick for reasons discussed above in reference to claim 20. Further, the addition of the disclosure of Clarisse would not have obviated or destroyed the teachings of Gulick.

As per claim 36, Gibbs as modified by Gulick discloses the system of claim 30 wherein Gulick discloses said system user selects an expanded user interface whenever said user interface indicates that sufficient additional resources are not available (col. 8 lines 30-67, wherein the user is prompted in response to a condition that occurs when a task request does not have sufficient resources available to service the request). Furthermore, the user interface disclosed by Gulick could be considered an expanded user interface in the sense that the user is prompted in an effort to resolve the problem of not having sufficient resources to service the task.

It would have been obvious to one of ordinary skill in the art to combine Gibbs and Gulick for reasons discussed above in reference to claim 20. Further, the addition of the disclosure of Clarisse would not have obviated or destroyed the teachings of Gulick.

As per claim 37, Gibbs as modified by Gulick discloses the system of claim 36 wherein Gulick discloses said expanded user interface comprises a task summary display that includes at least one of existing-task resource usage details and projected-task resource usage details (col. 8

lines 30-67, wherein the current resource utilization is available for currently executing tasks, as well as the projected resource utilization should the present task be serviced).

It would have been obvious to one of ordinary skill in the art to combine Gibbs and Gulick for reasons discussed above in reference to claim 20. Further, the addition of the disclosure of Clarisse would not have obviated or destroyed the teachings of Gulick.

As per claim 38, Gibbs as modified by Gulick discloses the system of claim 36 wherein Gulick discloses said expanded user interface comprises a task details display that includes individual resource details for one or more selected tasks (col. 8 lines 30-67, wherein the utilization is shown for Tasks A-D individually as well as what the projected utilization would be for Task E).

It would have been obvious to one of ordinary skill in the art to combine Gibbs and Gulick for reasons discussed above in reference to claim 20. Further, the addition of the disclosure of Clarisse would not have obviated or destroyed the teachings of Gulick.

As per claim 39, Gibbs as modified by Gulick discloses the system of claim 36 wherein Gulick discloses said system user performs a resource analysis procedure using said expanded user interface, and responsively cancels one or more existing tasks based on said resource analysis procedure (col. 8 lines 46-67, wherein the attempted initiation of a new task results in the operating system analyzing resources to determine if the allocated bandwidth has been exceeded, and the user is allowed to cancel tasks if the result of the analysis indicates that insufficient resources are available).

It would have been obvious to one of ordinary skill in the art to combine Gibbs and Gulick for reasons discussed above in reference to claim 20. Further, the addition of the disclosure of Clarisse would not have obviated or destroyed the teachings of Gulick.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Syed J Ali whose telephone number is (703) 305-8106. The examiner can normally be reached on Mon-Fri 8-5:30, 2nd Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William A Grant can be reached on (703) 308-1108. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Syed Ali
October 3, 2003

WILLIAM GRANT
SUPERVISORY PATENT EXAMINER
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10/24/03